

Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

Foreign AGRICULTURE

REVIEW OF FOREIGN FARM POLICY, PRODUCTION, AND TRADE

VOLUME 10, NO. 4

APRIL 1946

IN THIS ISSUE

	Page
DECLINE AND RECOVERY OF EUROPEAN AGRICULTURE:	
WORLD WARS I AND II	50
The declines	50
Factors affecting the declines	53
AGRICULTURE OF BRITISH HONDURAS	55
General description	55
Status of Agriculture	57
Export and cash crops	58
Crops chiefly for domestic consumption	60
Livestock	61
Forests and forest products	62
Government policy	63
Effects of the war	63
SPANISH HOPS SELF-SUFFICIENCY PLAN	64

ISSUED MONTHLY BY OFFICE OF FOREIGN AGRICULTURAL RELATIONS
THE UNITED STATES DEPARTMENT OF AGRICULTURE . WASHINGTON, D. C.

Decline and Recovery in European Agriculture: World Wars I and II

by NAUM JASNY*

The decline in the agricultural production of continental Europe, during World War I, amounted to something over 25 percent by 1919, the low point; 7 years were needed to restore it to the prewar level. An even greater decline in the USSR had its low point in 1921-22; prewar conditions were restored in about 6 years.

The year 1945 is likely to be the low point in European agricultural production during World War II; had climatic conditions not been so unfavorable in 1945, the decline this time would have been little, if any, greater than during World War I. Technical progress, especially in the use of tractors and fertilizer, and certain economic factors, such as planning and ability to control currencies, should permit restoration of the prewar level more rapidly than after World War I, but the political situation and certain other economic factors may prove greater handicaps. A minimum of 5 years seems to be the time needed for restoration of the prewar level.

The Declines

In World War I, the low point in the decline of European farm production was reached in the year immediately following the armistice, indeed with the planting of part of the crop having occurred before the armistice. That was the production year 1919-20, which included the 1919 crop and the 1919-20 livestock production. In 1945-46, that is, a production year even nearer the close of hostilities than 1919-20, the level of farm production certainly will be lowest thus far experienced in World War II. It would have been the lowest even if the severe drought over large areas had not occurred. Especially because of this drought one can be rather confident that 1946-47 (1946 crops and 1946-47 livestock production) will show a decided improvement.

Inadequacy of statistics makes exact comparisons of the extent of the declines in European agricultural production during World Wars I and II rather uncertain. It seems probable, nevertheless, that the decline until and including 1945-46 was

measurably larger than it was until and inclusive of 1919-20. If this was the case, the difference may have been exclusively caused by the fact that the climatic conditions were much less favorable for the 1945 crops than for the 1919 crops. With about equal climatic conditions in both years, the declines in farm production through 1919-20 and 1945-46 would probably be of the same magnitude: namely, equal to slightly more than 25 percent (volumes in terms of constant values).

The fact that with similar climatic conditions the decline in agricultural production would have been about as great in the second as in the first war is noteworthy in view of the greater territory affected by World War II, the greater severity of this war, and its longer duration. That in spite of all this, with normal weather conditions, a greater decline would not have occurred was owing mainly to the fact that the great importance of an adequate food supply was better realized, especially by the military, in this than in the previous war. Furthermore, progress has been made since World War I in economic planning, also with reference to farm production. Considerable advancement can also be observed in agricultural science and in the application of science by farmers and planners.

BY COUNTRIES

Italy's agricultural production suffered considerably more in this than in the previous war. This is even more the case with reference to Greece. Moreover, in both of these, as well as in all other Mediterranean countries, the 1945 crops suffered greatly from the drought. Finland and Hungary likewise are among the countries with a greater decline of farm production in this than in the previous war. Contrary to the situation in this war, in World War I the Netherlands was only for a short time fully shut off from foreign supplies. In spite of this important disadvantage for the second-war period, Dutch agricultural production until 1944 hardly declined measurably more than during the first war. But the damage to Dutch agriculture in the last months of World War II definitely places this country among those whose

*Office of Foreign Agricultural Relations.

This study will appear in two parts. In this issue the decline of European agriculture in the two wars is discussed; the recovery will appear in the May issue.

The author wishes to acknowledge the valuable cooperation of colleagues in the European Division of the Office.

agriculture suffered more damage in this than in the previous war. Nothing definite is known of the extent of the decline in agricultural production in prewar Poland, but the agricultural output there also may have slipped from the prewar level more than it did by 1919.

On the other hand, farm production in Denmark and Belgium is in much better shape now than after the first war. The situation in France, Czechoslovakia, Sweden, probably also in much of Yugoslavia, and in the western occupation zones of Germany is likewise better. In the other countries of continental Europe, as well as in the Russian occupation zone of Germany and Austria, either the present situation seems to resemble that in 1919 or adequate comparisons cannot be made owing to lack of data.

If, for developments in the Soviet Union during and after World War I and II, the declines are taken to the points when the lowest stands were reached, the damage to Russian agriculture was probably smaller in this than in the previous war, when the decline was at least 40 percent. Much more than in the extent of the ultimate decline, the developments in the USSR during and after both wars differed in the timing of the decline. The decline in Russian farm production during the present war reached bottom after 2 years of war, that is, in 1943; by 1945, a moderate part of the damage was already made up. In World War I, however, the low point was not attained before 1921-22; acreages and livestock numbers were indeed lowest in 1922. Moreover, a substantial part of the decline occurred after 1919, when the recovery in most other European countries was already under way.

Total agricultural production of the United Kingdom fared considerably better in this than in the previous war. While production declined in World War I, it increased materially in World War II.

BY PRODUCTS

Crops.—Production of grain and potatoes in continental Europe, ex-USSR, declined from prewar years to 1919 by 33.1 percent, according to official data.¹ The computations of the Office of Foreign Agricultural Relations for 1945 indicate for the same territory a smaller decline.

although the 1945 output was adversely affected by unfavorable weather. The rate of the decline in World War I was considerably overestimated in some countries, notably Germany, by official statistics. The decline in the second war probably was actually greater than in the first war. An approximate equality would likely be present only if the climatic effects were eliminated.

Sugar production in continental Europe, ex-USSR, declined in both wars much more than the production of grain and potatoes, with little difference between the two war periods. Contrary to the situation in World War I, production of oilseeds and vegetables expanded in this war.

The all-important grain acreage of the USSR fell by more than one-quarter between 1914 and 1921; yields also declined; and total grain production at the lowest point, with climatic factors eliminated, was little above 60 percent of prewar. Cotton production was practically discontinued in Russia in the first-war period, while sugar production was less than one-fifth of prewar. Total crop production probably fell about as much as grain production. The decline in both grain acreage and grain production in the USSR from 1941 to 1943 was probably not quite so severe as in the first-war period. The great decline in sugar production also did not reach the proportions of the first-war period, and the same is even more true of cotton. Even the smaller decline in crop production in this war was materially larger in the USSR than for the rest of Europe.

While the United Kingdom succeeded in increasing its grain and potato acreage at the expense of pastures in both wars, the results were much more gratifying in this war. From the average of 1913 to 1917, the peak year of the changes during World War I, the grain acreage was expanded by 1,600,000 acres, or 21 percent, and that of potatoes by about 200,000 acres, or 17 percent.² In this war, the grain acreage of the United Kingdom, reduced in size by the separation of most of Ireland, was expanded in 1944 over 1939 by 4,100,000 acres, or 78 percent; and the potato acreage by 700,000 acres, or 102 percent.

Animals and animal products.—Until 1944 the wartime declines in the principal types of productive livestock in continental Europe, ex-USSR, were comparable with those experienced during World War I, but in the last year of war

¹ LEAGUE OF NATIONS. AGRICULTURAL PRODUCTION IN CONTINENTAL EUROPE DURING THE 1914-18 WAR AND THE RECONSTRUCTION PERIOD. 122 pp., illus. Geneva. 1943. See pp. 70-71.

² MIDDLETON, THOMAS HUDSON. FOOD PRODUCTION IN WAR. 364 pp., illus. Oxford. 1923. See p. 241.

and shortly after its end heavy additional livestock losses occurred in many countries; only to a slight degree could these losses be offset by increases elsewhere. Thus, the total losses through 1945 are likely to be considerably higher than those in the previous war for all types of productive livestock. Approximations for the principal types of productive livestock in a territory which, aside from the USSR of 1938 boundaries and Great Britain and Eire, does not include all territories incorporated by the USSR since that date were as follows:

	World War I (prewar to 1919)		World War II (prewar to 1945)	
	Millions	Percent	Millions	Percent
Cattle -----	10	13	18	20
Hogs -----	21	34	26	36
Sheep -----	13	14	19	19

Poultry numbers also are likely to have declined materially more in this than in the previous war.

In spite of the greater decline in cattle numbers in continental Europe, ex-USSR, in World War II, milk production is likely to have fallen less than in World War I. A reduction by approximately 25 percent is indicated by the Office computations for 1945. In World War I, the decline may have been close to 30 percent.

The decline of dairy cows in this war was probably materially less than that of all cattle, and thus the decline of dairy cows may have been only a little larger than in World War I. The realization of the importance of milk in the diet and of the cow as an efficient converter of roughage into this highly nutritious food has made great progress since the first war; cows, therefore, had the highest priority for maintenance in this war. Another reason for the relatively small decline in the number of cows is the progress made in scientific feeding and production of suitable feed on the farm; that is, in the diminished dependence of farmers on imported concentrates.

Even in World War II, the principal factor in the decline in milk production was the reduction in the milk yield per cow rather than in cow numbers. But owing to the considerable progress in scientific feeding and the diminished dependence on purchased concentrates for obtaining high milk yields, the decline in milk yield was smaller in World War II than in World War I. Denmark seems to be the only country of continental Europe for which reliable data on the milk

yield per cow for both wars are available, but unfortunately the comparability of the data is affected by the fact that climatic conditions were unfavorable for feed production in 1917 and 1918, whereas they were favorable for the crops of 1942 through 1945. The data³ are as follows (in pounds per cow):

World War I		World War II	
1914-----	5, 929	1935-38-----	7, 154
1915-----	5, 666	1941-----	5, 346
1916-----	5, 710	1942-----	5, 181
1917-----	5, 313	1943-----	5, 732
1918-----	4, 034	1944-----	5, 710
1919-----	3, 660	1945 (approx.)-----	5, 900

Thus the data, as they stand, indicate a smaller decline in the milk yield in Denmark during the second war, not only in terms of percentages but even in pounds. As is obvious from comparisons of the milk yields in 1918 and 1919 with those in 1941 and 1942, which likewise were depressed by a very poor crop (that of 1941), the decline of the milk yield in the second war was materially smaller in terms of percentages than in World War I, even with the climatic factors eliminated. The great progress in the feeding of cows since World War I is evident from the fact that at the end of World War II the milk yield in Denmark was only negligibly below that obtained before World War I.

Greatly exaggerated figures are frequently quoted on the decline of the milk yield in Germany in World War I. Those figures are valid only for a relatively small percentage of high-yielding cows, which before the war were fed large amounts of concentrates. Still, a decline in the milk yield in all of Germany by at least 20 percent, perhaps even 25 percent, in that war seems probable. The decline of about 12 percent from pre-World War II to 1944 indicated for Germany compares favorably with those figures. There may have been a further decline, it is true, in 1945.

There is no reason to believe that a change with reference to the decline in milk yield similar, although not equal, to that in Denmark and Germany did not occur in several other countries. The decline in the milk yield per cow in the whole of continental Europe, ex-USSR, probably did not exceed 15 percent in World War II, whereas in World War I it is likely to have been 20 percent or even slightly more.

³ Yields from cows whose milk is delivered to dairy plants.

The decline in meat production may be estimated at over 30 percent in World War II but at somewhat less for World War I. Meat cattle declined substantially more in this than in the previous war, and the reduction in hogs also was moderately larger. But some of the results from these unfavorable factors were probably offset by the increased ability to utilize the available feed supplies.

The smaller decline in milk production in World War II probably approximately offsets the greater decline in meat output and also in eggs. Hence, the decline in total production of animal products in 1919 and 1945 (each relative to its respective prewar base) seems to differ little.

In World War I production of animal products in continental Europe, ex-USSR, seems to have declined more than that of crops. The same would probably be the case in this war if the 1945 crops had not been so adversely affected by unfavorable weather. It is impossible to say whether, with the weather factor eliminated, the decline in animal production relative to the respective crop production was greater in this than in the previous war. The greater decline in this war could be readily explained by the increased insistence on diversion of feed to food use in World War II.

A rather significant fact is that production of animal products did not decline in World War II even more relative to crop production than it actually did. The substantially improved maneuverability in agriculture certainly has an important share in the relatively favorable showing made by animal husbandry in this war.

Before leaving the production of animal products in continental Europe, ex-USSR, another glance at Denmark may be useful. This country, as in a nutshell, illustrates the increased ability for economic adjustments developed since World War I.⁴ Denmark, whose animal husbandry greatly depends on imported concentrates, escaped occupation in the earlier war but not in this. Except for the difference in weather conditions—poor in 1917 and 1918 and satisfactory in 1942 through 1945—any observable relative betterment in this war is the result of deliberate action, greater attention to maintenance of agricultural production, improved planning techniques, and greater knowledge.

A surprisingly negligible decline in Danish crop production in this war is demonstrated by the figures presented in the next subsection. Partly because of this, but also for other reasons, Denmark succeeded in maintaining almost all its cows (1,550,000 in 1944 as against 1,608,000 in 1935–38). But dairy herds were reduced by almost 20 percent during World War I. Since the percentage decline in the milk yield in this war was also smaller than that in the previous war, the total milk output in this war declined by slightly less than 25 percent. In World War I the decline would have been somewhat above 40 percent even if the milk yield of 1919 had not been affected adversely by the unfavorable weather. The number of hogs in Denmark fell by exactly one-half in this war and by more than two-thirds (71.6 percent) in the previous war, with a correspondingly larger reduction in pork production. The index of total output of animal products in Denmark was 69 percent of prewar in 1944. The output of these products was certainly less than half of prewar in 1919; even with normal weather conditions, it would have been not much over half of prewar in that year.

In the USSR the decline in livestock numbers and in the production of animal products surpassed that in the rest of Europe even in World War I, when it was not so large as in World War II. This statement can be made, although exact figures are not available.

Efforts to maintain agricultural production in the United Kingdom were reflected quite differently in the output of various animal products. Milk production declined by about 20 percent from the average of 1909–13 to 1918.⁵ Even in the worst year of the second war this decline was only about half as large, and by 1944–45 prewar milk production seems to have been practically restored. Meat production, however, which, according to Middleton,⁵ declined by 17.1 percent during World War I, was curtailed even more in World War II.

Factors Affecting the Declines

Certain pertinent factors, other than weather, affecting the decline in both wars, such as the greater attention paid by the authorities to the maintenance of farm production and the increased ability to plan and carry out plans, have been already mentioned. In addition, there are some specific factors of importance.

⁴ For details, see FRIEDMANN, KAREN J. DANISH AGRICULTURAL PRODUCTION—WORLD WAR I AND WORLD WAR II. Foreign Agr. 10: 7–11, illus. 1946.

⁵ See p. 244 of reference cited in footnote 2.

LABOR

With some exceptions, mainly in Russia, shortage of manpower was probably the principal reason for the decline in crop production in World War I. Decreases in acreages were largely caused by this factor, which was also responsible for part of the decline in yields. It is therefore significant that the labor supply was better in this war in all the three larger countries of continental Europe, ex-USSR—Germany, France, and Italy. At least in the case of Germany, this was the result of a deliberate policy of maintaining crop production at the highest possible level.

German agriculture lost 3,300,000 of its 5,200,000 agricultural workers by drafts in the first war,⁶ and less than one million were replaced by prisoners of war.⁷ In this war, all men drafted from German agriculture were replaced by prisoners of war, or "voluntary" labor, mainly from Russia and Poland; the loss to agriculture was only because the substitutes were deficient in skill, strength, and willingness.

The loss by French agriculture in manpower in the first war was even greater than that of Germany. According to a well-known expert,⁸ from a total of 5,200,000 men in agriculture, 3,700,000 were gradually taken into the army. The loss in this war was only one-quarter as great. Although the total number of men in French agriculture at the start of this war was considerably less than at the start of the last war, the much smaller number of men lost in this war could not fail to have a great effect. In Italy, the armed forces also absorbed a smaller percentage of the farm population in this war.

Certain smaller countries of continental Europe likewise displayed a better manpower situation in this war. The relatively favorable showing of Germany applies also to Austria and Sudetenland. Hungary's war effort and corresponding mobilization of farm labor were certainly much smaller in this than in the previous war. Even in the parts of Austria-Hungary which later became Czechoslovakia and Yugoslavia the loss of farm labor due

to the war effort is not likely to have been everywhere so heavy in this war.

Total manpower in Russian agriculture was scarcer, but the utilization of the available manpower was much more complete in this war. The collective system apparently proved more advantageous for this purpose than the system of private ownership (during the first war), under which the large estates had to cut their production drastically owing to shortage of labor, which on small farms was not used to the utmost.

In the United Kingdom, care was taken to leave enough labor in agriculture during both wars, but the situation seems to have been more satisfactory in this war.

DRAFT POWER AND MACHINERY

In continental Europe, ex-USSR, the draft-power situation ultimately became worse in this than in the previous war. By 1944, horses had declined by about 2,000,000 head (11 percent) as against a loss of 1,750,000 in World War I. In 1945, a further large decline occurred in eastern Germany and Austria, Hungary, Rumania, and possibly some other countries. Mules and probably oxen also sustained greater losses during the second war. While requisitions for military purposes, which were the principal cause of the decline in animal draft power, were unavoidable, Germany made a real effort to replace at least part of this loss by tractors—in Germany itself as well as in Rumania and some other countries.

The immense losses of draft power—tractors and horses—by the USSR in this war far exceeded the substantial losses in animal draft power in the earlier war. The collective system apparently helped to mitigate this blow. In the United Kingdom, tractors played a decisive role in the battle for increased agricultural output in this war; this was not the case in the earlier war.

Considerably more attention also was given during World War II to providing German agriculture, and that of some other countries, with machinery other than tractors and with spare parts. But motor fuel, binder twine, and the like have gained in importance since World War I, and hence their scarcity was more damaging. New machinery other than tractors was as good as unavailable in the USSR during this war, but this deficiency could not contribute much to the decline in output, because draft power to pull new machinery would not have been available anyway.

⁶ SCALWEIT, AUGUST. MAINTENANCE OF THE AGRICULTURAL LABOUR SUPPLY IN GERMANY DURING THE WAR. *Internatl. Rev. Agr. Econ.* 12: 836-890, illus. 1922. See p. 852.

⁷ AEREBOE, FRIEDRICH. DER EINFLUSS DES KRIEGES AUF DIE LANDWIRTSCHAFTLICHE PRODUKTION IN DEUTSCHLAND. 205 pp., illus. Stuttgart, Berlin [etc.] 1927. See p. 33.

⁸ AUGÉ-LARIBÉ, MICHEL. AGRICULTURE. In *Augé-Laribé, Michel, and Pinot, Pierre, Agriculture and Food Supply in France during the War.* 328 pp., illus. London and Oxford, 1927. See p. 39.

Scarcity of new machinery had little effect on Russian farm output in World War I.

FERTILIZER

The situation in this war was definitely worse only with reference to fertilizer. Owing to the larger decline in livestock numbers, there was slightly less manure than in World War I. Much more important, however, is the fact that the application of commercial fertilizer, especially of nitrogen with its great immediate effect on crops, was greatly increased after World War I, and hence the great reduction in supplies of commercial fertilizer, which occurred in both wars, must have had a correspondingly greater effect on crop production in this war.

The adverse effect of reduced supplies of fertilizer seems to have turned out to be less serious than many had anticipated. The relatively small effect of the great shortage of phosphatic fertilizer in enemy countries proved particularly disappointing for those who hoped that a break-down in German food supplies would help to win the war. Denmark seems to be a good place to observe the effect of fertilizer shortage, because this was the only

real effect of war on its crop production. Contrary to expectations, the large decline in the application of phosphates, associated with a slightly reduced amount of manure and a moderate deterioration in its quality, failed to have a visible effect on Denmark's yields.

Denmark's crop production was estimated at 8,150,000 short tons for the average of 1934-38;⁹ the return averaged 8,400,000 tons in 1942 through 1944, or 8,200,000 tons if the climatically very poor 1941 year is included with the other four war years. While the increase in the proportion of high-yielding crops in the total acreage has to be taken into consideration, the fact that soils well stocked with phosphates by previous fertilizations can go along with greatly reduced applications for quite a while without showing much decline in yields has evidently been proved. The decline of yields in Germany by perhaps only 8 percent until 1943, that is, the fourth war crop, in the face of the drastic decline in the application of phosphates, is further proof, because, as indicated above, a number of other factors also worked toward smaller yields.

⁹ Official computation in barley units.

Agriculture of British Honduras

by CONSTANCE H. FARNWORTH *

Government efforts to extend and improve agricultural production in British Honduras have recently been intensified. Progress, however, has been slow chiefly because of the difficulty of inducing the nonagriculturally minded West Indian Creole population to practice farming instead of forestry and also because of the problem of replacing the traditional form of shifting cultivation by permanent agriculture. The steady increase in population, together with the fear that accessible reserves of the important mahogany and chicle forests may soon be exhausted, makes agriculture increasingly important. Relatively speaking, local consumption of forest products is negligible, but exports average about three times those of agriculture. On the other hand, most agricultural products are consumed locally; and, although over-all production of foodstuffs continues to increase, exports remain small, because the Colony is still unable to fill its own increasing domestic requirements.

General Description

British Honduras, the only British possession in Central America, has an area of 8,867 square miles, 212 of which are islands off the coast. Its area is

comparable to that of the State of Massachusetts. The greatest length of the Colony is 174 miles and the greatest width about 65 miles.

The northern half of British Honduras is nearly flat with an altitude of less than 100 feet. Approximately one-third to one-half of the region is suitable for agriculture. To the south of this region, back of the coastal lowlands, the country is hilly and even mountainous. Paralleling the coast is the main range or Maya Mountains with elevations reaching more than 2,800 feet. Running east from the Maya Range are the Cockscomb Mountains towering at one point, Victoria Peak, to 3,680 feet, the highest crest in the Colony.

In the extreme south there is a fertile, rolling country. For a width of from 5 to 10 miles along the coast are rich alluvial deposits broken by swamps and lagoons and surmounted in places by sandy pine ridges. Cays and coral reefs fringe the mainland and provide coastal protection from the rough seas.

*Office of Foreign Agricultural Relations.



FIGURE 1.—Reference map of British Honduras.

SOILS

Some of the soils¹ of British Honduras are of the alluvial type, found mostly along the courses of the rivers. They are fawn grey to red brown in color, somewhat acid, and vary in texture from medium loams to clays. These soils are fairly deep and fertile, forming the best agricultural land in the Colony. Citrus fruit and rice do especially well on the alluvial deposits, rice being grown mainly on the silty soils near the river mouths.

In the northern part of the Colony good lands are also located in the interior away from the rivers. The soils of the region are composed in part of clayey, disintegrated limestone, which is black in appearance and marly in character. These soils sometimes merge into sandy soils of very poor quality, which support pine-ridge vegetation.

Thicker deposits of sandy soil apparently extend in a level plain along the coast to the southern part of the Colony as far as Deep River. On these sandy deposits along the coast, as well as on the cays just off the coast, coconuts are grown.

To the south of Deep River there lies some fertile, rolling country composed of limestone soils, which are red-brown loams fairly high in plant nutrients. Sugar is produced on the limestone soils of the Northern District and on those of the Toledo District to the south. Nowhere in the Colony, however, have the soils reached the agricultural importance of the river alluvium deposits on which most of the crops are raised.

CLIMATE

British Honduras is entirely within the tropical zone but is characterized by a climate that is more nearly subtropical than tropical. The range of temperature is small, with a maximum usually in the neighborhood of 90° F. and a minimum near 60°. Over a period of 15 years the mean annual temperature at Belize was 77.8° F., which is fairly representative of that in the rest of the Colony. Sea breezes and trade winds temper the humid atmosphere of the coastal plains and produce a surprisingly cool climate even in the summer months. The most pleasant period in the Colony, however, is from December through April. In the interior, temperatures as high as 98° F. sometimes occur during the second half of the dry season, in April and May—the critical period for plant growth.

In most of British Honduras, the year may be definitely divided into a wet and a dry season. The dry season occurs from February to May and during a less clearly defined period in August, which is known as the “maugre” season. The remaining months, which make up the wet period, are marked by a fairly well pronounced rainfall maximum in June and one less pronounced during September and October. The variation in rainfall from year to year is about as noticeable as the seasonal variation. Belize had 130.7 inches in 1911 and only 42.3 in 1923. The mean annual rainfall for the Colony runs from less than 50 inches in the north to more than 150 in the Maya Mountain area and parts of southern Toledo.

PEOPLE

The population of British Honduras is composed of several different ethnic groups. In the Northern District, the people are chiefly of Span-

¹ [GREAT BRITAIN] COLONIAL OFFICE, COLONIAL DEVELOPMENT AND WELFARE IN THE WEST INDIES. AGRICULTURE IN THE WEST INDIES. 280 pp., illus. London. 1942.

ish and Maya descent. In the Stann Creek and Toledo Districts are the Caribs, and in Toledo there are also Mayas. Cayo has the Guatemaltecos and Mexicans and Belize the West Indian Creoles. There are also a small number of Europeans and a few people from the United States, some Syrians and Chinese, and large numbers of Latin extraction from the neighboring republics. In 1938 the population was estimated at about 58,000, of which about 8,000 were engaged in agriculture, from 5,000 to 6,000 producing crops for local consumption. The 1943 Census estimated the total population at 62,500.

The Mayas and Caribs raise most of the crops, practicing a form of shifting cultivation known as "milpa." The West Indian Creoles work on the large estates, principally in the lumbering and chicle-collecting industries.

TRANSPORTATION

Internal transportation is chiefly by water. The river system of the Colony, being extensive, affords many natural highways into the interior and assists in the development of the country. Some of the more important rivers are the Belize, New, Hondo, Sibun, Manatee, Sittee, Southern Stann Creek, Monkey, Deep, and Sarstoon. The Burdon Canal connects the Belize and Sibun Rivers, and another connects the Sibun with the Northern Lagoon. Coastwise transport, which is by vessels of light draft, is easy to obtain but is slow and comparatively expensive.

A main road is being constructed between the cities of Punta Gorda and San Antonio, a distance of 21 miles. Another under construction covers a distance of 99 miles from Belize to Corozal by way of the town of Orange, and recent plans have been developed for building still another from Belize to Cayo in the interior. A short railroad track of 25 miles, running from Stann Creek inland, is being converted into a highway.

TACA (*Transportes Aéreos Centroamericanos*) furnishes passenger and freight air service from Belize to Cayo, Punta Gorda, Stann Creek, and Corozal.

Status of Agriculture

The future economy of British Honduras is dependent upon the improvement and extension of its agriculture, as well as the conservation and

wiser use of its forests. The increased production of crops for domestic consumption and the production of suitable export crops need fostering. New and advanced methods of cultivation, to replace the old form of shifting cultivation, as well as larger numbers and improved breeds of livestock, are essential. The feeling in the Colony is that the self-sufficient small farm of the future must be based upon a system of mixed farming, and, looking toward this end, the Government has laid its basic plans of action.

FARM ORGANIZATION AND PRACTICES

There are approximately 6,000,000 acres of land in the Colony, about 45 percent of which belong to individuals or companies. The remainder is Crown land. In the early years the Crown made large land grants to the people at unusually low prices, with the result that they took up most of the good land and left the poorer soil to the Government. Since 1934, however, 177,000 acres have been taken back by the Crown in lieu of taxes and have been declared land reservations. Small planters are permitted to occupy and cultivate land in these reservations on payment of a fee of from \$1.00 to \$5.00 per year. There were 92,000 acres occupied under the plan in 1938.

A system of Crown land leases for agricultural purposes was discontinued after 1935, except in special cases, and replaced by one of freehold grants. Under this plan, the Government sells the land to individuals at from \$2.00 to \$5.00 per acre, depending upon locality, payable in installments over a period of years.² Within 5 years, however, all the land purchased has to be cleared and half of it under cultivation, partly in permanent crops.

About 560,000 of the country's 6,000,000 acres are now almost entirely under the milpa form of cultivation.³ Under this system, after the forest, or secondary bush, is felled and burned, a crop is planted for one or possibly two seasons. Then for about 15 years the land is left idle and the bush allowed to grow. This practice leaves only about 68,000 acres actually being cultivated at any one time.

² BRITISH HONDURAS SURVEY DEPARTMENT. ATLAS OF BRITISH HONDURAS. 27 pp., illus. (n. p.) [1939]

³ See reference cited in footnote 1.

The Mayas use this system exclusively. Their methods of planting are likewise somewhat crude; seeds are placed in holes made with sticks and receive little further care. The crops which they raise are, first and most important, corn, and, in addition, vegetables and some tobacco.

The Caribs have access to slightly better land and practice somewhat more advanced methods of agriculture than the Mayas. They grow manioc (cassava), plantains, sugar, rice, and vegetables. In addition, they own some coconut and fruit trees.

The West Indian Creoles also practice shifting cultivation but on the more fertile stretches along the river banks, where the soil can stand longer periods of cropping. They raise bananas, corn, plantains, and rice. There are a few Jamaicans who have come into the country and brought with them their regular and settled agricultural practices. They form the most stable part of the agricultural population.

Little use has been made of fertilizers within the country because of the practice of shifting cultivation, which maintains the fertility of the soil sufficiently for plant growth. Should permanent agricultural occupation become more prevalent, however, the use of fertilizers would be necessary. At present citrus growers are using some artificial fertilizers, but the amount is small.

The many rivers of the Colony furnish sufficient water for irrigation purposes, but up until now little use has been made of this resource.

Export and Cash Crops

Coconuts and their products, bananas and some plantains, and citrus fruit (mainly grapefruit and some oranges) furnish the bulk of the agricultural exports from British Honduras. At no time, however, have these comprised a large percentage of the total export figure. (See fig. 2.)

COCONUTS

Coconuts are raised on the sandy soils along the coast, on the mainland, and on the cays just off the coast. The largest producing area is in the northern part of the Colony. Although coconuts have been planted extensively, the groves have been neglected, and cultivation standards have been low. Copra for export is of poor quality; it is all sun-dried and not protected from the rain during the drying period. The area devoted to

coconut production in 1943 was estimated at about 4,000 acres⁴ with an annual production of approximately 9,000,000 nuts.

TABLE 1.—*Coconut and copra exports from British Honduras, specified years*

Period	Coconuts	Copra
	<i>1,000 nuts</i>	<i>1,000 pounds</i>
Average 1935-39.....	4,697	430
1942.....	1,892	584
1943.....	1,269	537
January-June:		
1944.....	849	-----
1945.....	1,966	-----

More attention has been given the groves since 1943 because of increased demands and consequent higher prices for the nuts, both for export and local consumption. New areas have been planted, and partly abandoned plantations have been reclaimed. Hurricanes in 1941 and 1942, as well as the drought of 1943, had reduced the production for those years, and, with the increase in export demand resulting from the war, the country found itself short of supplies for domestic use. Home consumption for 1943 was estimated at two to three million nuts.

The nuts are used locally for food, for the extraction of cooking oil, and for copra, which since 1939 has been used in the expanding local soap industry. Recently the Government undertook to limit exports by levying an export duty, by specifying the size of nuts for export, and by requiring delivery to the Import Control Department of one-fifth the number for which an export license was granted. Coconut exports during January-June 1945 were, however, more than double those of the corresponding months of 1944, but no copra exports were reported. (See table 1.)

BANANAS AND PLANTAINS

Soils suitable for banana growing in British Honduras occur in isolated patches, thus limiting any large-scale production of the fruit. Other factors limiting production, one or more of which occur in each area of the plantings, are low rainfall not properly distributed, absence of efficient internal transportation, and the prevalence of sigatoka and Panama diseases, against which but little defense is made.

The crop is usually planted on newly semicleared land and receives little attention thereafter. Suc-

⁴ BRITISH HONDURAS DEPARTMENT OF AGRICULTURE. ANNUAL REPORT FOR 1943. 13 pp., illus. [London] (n. d.)

cessive crops are gathered until production fails; then the area is abandoned, and a fresh crop planted in a newly cleared region. Average holdings contain about 20 acres, with the total acreage for the country estimated in 1943 at about 3,000 acres for bananas and plantains together. No accurate figures on production are available, but the assumption is that about one-third of the crop is consumed locally and the remainder exported. Annual exports during 1935-39 averaged 658,000 bunches. Most of the bananas raised for export are grown in the upper valley of Stann Creek District, Toledo District, and along the upper part of the Belize River. (See table 2.)

The Gros Michel is the only variety grown in any considerable quantity. Reports state that most bananas grown in British Honduras are of poorer quality than those of the nearby competing countries. In addition, there is a lack of uniformity as to size of the bananas in any one bunch. The average weight of mature stems has declined from about 50 pounds in 1938 to 20 pounds in 1945, probably because of the recent shipment of poorer quality stems in response to increased demands.

At present banana cultivation in British Honduras is not a promising industry, and, with the numerous factors limiting production, prospects seem unlikely to improve.⁵ Exports declined from 1939 to 1943 because of a shortage of shipping facilities. In 1943 shipping conditions improved, however, but exports continued to decline mainly because of disease. The slight rise in exports during the first half of 1944 and 1945 followed such strong demands for export fruit that stems which would normally have been rejected because of inferior quality were accepted. Such demands are unusual and not expected to continue now that the war is over. The bananas of British Honduras are exported solely to the United States.

TABLE 2.—Banana exports from British Honduras, specified years

Year	Exports	Year	Exports
	1,000 bunches		1,000 bunches
1939.....	523	1943.....	42
1940.....	437	January-June:	
1941.....	337	1944.....	78
1942.....	97	1945.....	86

Plantains are grown under much the same crude form of shifting cultivation as that under which

the banana is produced. Output has increased in late years but mainly for local consumption.

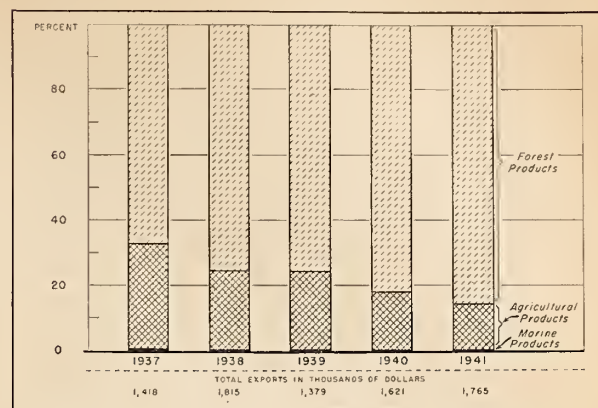


FIGURE 2.—Value of exports from British Honduras, by specified groups of products, expressed in percentage of total exports, 1937-41.

CITRUS FRUIT

The most important center of citrus-fruit production is in Stann Creek, but the Northern, Belize, Cayo, and Toledo Districts also have some groves. The fruit thrives best on the river alluvial soils, where most of the producing areas are located. The groves vary in size from 30 to 300 acres and are attended by standards of cultivation that are reasonably good. Spraying, use of fertilizer, and pruning are practiced to a limited extent.

Although oranges, limes, and lemons are produced, the grapefruit is by far the most outstanding citrus fruit. Grapefruit trees grow naturally in the Colony, and these have supplied sufficient fruit for the local demand, although recently this demand has greatly increased. The Marsh Seedless and Duncan grafted varieties are planted and in relatively large numbers. The Marsh variety matures from September to December and the Duncan from January to April. There were 920 acres harvested in January 1946, with prospects indicating a possible production of 100,000 boxes for export and 5,000 for domestic consumption.⁶ The estimate of fruit available for export in 1946 is about 38,000 boxes larger than the 1939 figure.

The Government has attempted to foster the grapefruit industry by scientific direction, direct aid in marketing, and, in 1943, by granting a subsidy to fruit producers to use in keeping their orchards clean of spoiled fruit and insect pests during

⁵ GIDDEN, CULVER E. DOMESTIC EXPORTS FROM BRITISH HONDURAS IN FIRST HALF OF 1944 AND 1945. U. S. Cons. Rpt. No. 1216. 4 pp. Belize. Sept. 19, 1945. [Hectographed.]

⁶ LISTON, PAUL F. FORECAST OF GRAPEFRUIT PRODUCTION IN BRITISH HONDURAS. U. S. Cons. Rpt. No. 39, 1 p. Belize. Oct. 17, 1945. [Hectographed.]

the time there were no shipping facilities available because of the war. Most of the fresh fruit exported before 1941 found markets in England and Canada. Limited quantities were sent to the United States Army in the Canal Zone as late as 1943 and to Mexico through 1944 (table 3).

In July 1945 a contract was made between the Jamaica Producers Association and the British Honduras Citrus Association Limited, the latter of which is a union of the major grapefruit growers in the Colony.⁷ The associations fixed a purchase price at 30 cents per box of grapefruit at the roadside of the farm. The Jamaica Association is to take all the Honduran association's output for 3 years at the above price. Most of the fruit is to be turned into concentrates or canned locally.

TABLE 3.—Exports of fresh grapefruit from British Honduras, by country of destination, 1939-44

[Boxes of 80 pounds net]

Year	United Kingdom	Canada	Bermuda	Mexico	Cayman Islands	Panama	Total
1939	50,919	10,368	305	160	52		61,804
1940	37,991	16,061	1,226	570			55,848
1941		5,300	302	207			5,809
1942				165			165
1943				2,481		3,962	6,443
1944				2,233		312	2,545

The selected grapefruit of the Colony has for several years been recognized as of the finest quality and appearance and, now that the war is ended and shipping space is becoming available, no doubt the fruit growers will again ship fresh fruit to England and Canada in an attempt to regain their former markets and their reputation for fine fruit.

Other citrus fruit, chiefly oranges, have been exported in small quantities, but none have achieved the importance attained by grapefruit.

Crops Chiefly for Domestic Consumption

The production of food crops in British Honduras falls short of meeting the requirements of the people. The Colony normally is an importer of most of its essential foodstuff and an exporter chiefly of forest products, fruits, and nuts. The principal food crops cultivated for home consumption are corn, rice, sugarcane, cassava, beans, and other leguminous plants.

CORN

The most extensively grown food crop is corn. Cultivation is carried on principally by the Maya Indians, who keep most of the crop for their own use and sell small amounts directly to the public. The crop is grown under the milpa system, especially in the Northern, Cayo, and Toledo Districts. The time of planting is in April, May, or early June, according to when the rains begin. Yields average about 13 bushels per acre, and the size of the ears is fairly large, considering the simple form of crop cultivation. The 1943 Census estimated that 11,438 acres were planted to corn, an increase over previous yearly plantings. Excessively dry weather, however, reduced the yield so that production did not meet domestic demands, and imports were necessary to tide the people over until the 1944 crop was harvested. A larger acreage, producing an excellent crop, was harvested in 1944, and a surplus of 180 short tons was purchased by the Board of Agriculture for resale later. Increased production of corn is a part of the Government's plan for agricultural expansion that has met with some success.

SUGARCANE

The chief sugar-producing region is that part of the Northern District formerly known as the Corozal District, although there are some smaller areas in Belize, Stann Creek, and Toledo. The cultivation standards of the Colony are somewhat low in comparison with those of other sugar-producing countries but are showing improvement. The industry is expanding so that British Honduras now is practically self-sufficient. Fairly large quantities were imported by the Colony prior to 1939, but recently a little sugar has been exported, although this was partly offset by refined-sugar imports for home consumption.⁸ The Government-sponsored Corozal factory produces most of the sugar, but other smaller factories in the District produce limited quantities of brown sugar and rum. The Toledo District also has a few small factories, and the Belize and Stann Creek Districts are increasing their numbers of very small ox- or mule-driven mills, which produce sirup and wet brown sugar for local consumption.

In the 1944-45 season 850 acres were planted to cane, but production of sugar totaled only 503

⁷ See reference cited in footnote 5.

⁸ BRITISH HONDURAS DEPARTMENT OF AGRICULTURE. ANNUAL REPORT FOR 1944. 9 pp., illus. [London] (n. d.)

short tons. Extraction was extremely low because of a delay in grinding caused by boiler trouble at the sugar central. Reports indicate a production of about 1,300 short tons for 1945-46.

RICE

Rice is grown mainly for consumption by the growers, but a small portion is marketed. It is planted in regions where rainfall is high and on swampland, the best areas being in the Toledo District. The crop is planted in May or June and harvested in October and November. Production has increased in recent years, but import demands remain high, since home-grown rice supplies only about 15 percent of domestic requirements. The increased production probably resulted from the depression in banana growing brought about by disease, the increased use of British Guiana varieties which are best suited to local conditions, and the Government campaign to grow more rice at home.

The Agricultural Census of 1943 showed 2,615 acres planted to rice. The Government Board of Agriculture purchased 588,436 pounds of locally grown padi, and, in addition, growers retained an amount estimated at 1 million pounds or more. Of two Government-owned mechanical threshing plants, one is at Belize and one at Punta Gorda, in the Toledo District. A minimum price is guaranteed by the Government for rice delivered at the Belize mill or at other buying centers.⁹

Wartime restriction in shipping cut off the Colony's chief sources of supply for rice—British Burma and British India—and stopped purchases made through the United Kingdom. The Colony then had to secure such supplies as were available from the United States and El Salvador. Total rice imports averaged 2,850,000 pounds annually during 1935-39, 1,851,000 in 1942, 1,676,000 in 1943, and 2,578,000 in 1944.

CASSAVA

Cassava or manioc is grown mainly by the Caribs. The women grind the roots and use the meal or flour for cassava bread. They also make starch.

In 1943, the manioc acreage was increased, and small amounts of starch were exported to Mexico. In addition, there were adequate supplies to meet local market demands for food.

Livestock

The raising of livestock in British Honduras is not an organized industry but merely a casual addition to agriculture. The Government is making efforts to aid the industry by improving hog and cattle breeds. Animals of good strains have been imported for this purpose, and a campaign has been started to encourage the fencing of pastures, rotational grazing, and the planting of fodder grasses. As yet cattle are not utilized for dairy purposes.

In earlier years, and probably to some extent now, cattle were used for hauling in the logging industry. Lately this practice has been partially replaced by use of tractors. The limiting factor to the number of cattle that can be kept in the Colony is the poor pasturage available during the dry season. No attempts have been made to provide fodder or to make silage for use as feed during this period. There are, however, a few good pastures in the Colony, as on the upper Belize River, where fairly large numbers of cattle are kept to help furnish the meat supply for the country. The chief trouble in this region is the long distance the cattle must be driven to reach the market in Belize and the lack of feed at the market center where they should be reconditioned before sale. There has, however, recently been an increase in cattle production, with a consequent decline in imports of cattle for slaughter.

Hogs are raised in fairly large numbers. Most of them are allowed to graze, but in addition they are fed rations of corn, waste bananas, cassava, coconuts, and other vegetable refuse. A few animals are permanently penned and fed. The larger supplies of corn available in 1944 were in part responsible for the increased numbers of pigs reported,

TABLE 4.—*Census of livestock, by Districts, 1943*

District	Cattle	Pigs	Horses and mules	Poultry	Others ¹
	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>
Stann Creek.....	639	475	92	2,204	127
Corozal ²	385	1,251	394	7,008	85
Orange Walk ²	1,358	1,211	504	7,201	-----
Cayo.....	5,987	1,642	2,371	9,320	98
Toledo.....	802	4,253	70	11,972	33
Belize.....	1,010	723	257	6,705	20
Total.....	10,131	9,555	3,688	44,410	363

¹ Mainly goats and sheep.

² Now amalgamated to form the Northern District.

BRITISH HONDURAS, DEPARTMENT OF AGRICULTURE. ANNUAL REPORT, 1943.

⁹ GIDDEN, CULVER E. RICE INDUSTRY OF BRITISH HONDURAS. U. S. Cons. Rpt. No. 8, 3 pp., illus. Belize. Feb. 5, 1945.

and possibly more would have been raised if the poorer quality bananas, normally not accepted in trade, had been fed instead of exported.

The small amount of lard produced in British Honduras is consumed by the individual producers in their own households. Hog lard is listed as one of the articles prohibited from importation into the Colony, although permits for imports of inconsequential amounts are sometimes granted. In 1943 there were 561,568 pounds of lard and lard substitutes imported, but probably less than 5 percent of this amount was hog lard. There is quite a demand for lard in the chicle camps, because it is easier to preserve than vegetable shortening and cooking oils. Actual consumption probably approximates 45,000 pounds a year.¹⁰

Small numbers of poultry are kept, but neither poultry nor eggs meet the domestic needs. The year 1944 saw larger numbers of chickens raised, probably also because of an increase in available feed. (See table 4.)

Forests and Forest Products

The area of forest land represents about 92 percent of the total land area of British Honduras or about 8,131 square miles. There are, however, sections of forests which are unprofitable and incapable of improvement. The cutting of lumber and of logs from the mahogany, pine, rosewood, cedar, and other minor varieties of trees, as well as the bleeding of the sapodilla tree for chicle for export, are the major industries of the Colony.

Most of the trees cut for logs and lumber, with the exception of pine, are felled by ax, and the logs are floated on the rivers to Belize. If the trees are felled near the sea they are transported by raft. Pine trees, however, are usually cut near a sawmill to which they can be carried by truck or tractor and sawed into lumber. The lumber is then brought to Belize in barges.

The lumber industry began to expand significantly in 1943, and production now covers approximately half the Colony's annual requirements or about 1,000,000 board feet. There are 8 small mills, sawing pine only, but their total output is only 700,000 board feet. In addition, a modern sawmill, which formerly turned out mahogany lumber exclusively, now also saws lumber from

pine and secondary woods. Its 1943 production of lumber other than mahogany was about 300,000 board feet.

In 1944, 22,500,000 feet of mahogany lumber and logs were shipped through Belize. Most of this wood, however, originated outside the Colony, about 6,000,000 board feet being of domestic origin.

The mahogany forest is really a mixed tropical forest of from 200 to 800 different species of trees found in the high rain forest, the best stands being in the northern half of the Colony. There is a certain amount of natural reproduction but not enough to replace the trees felled, and stands of virgin mahogany are being rapidly depleted. The commercial stands are now confined mostly to inaccessible areas situated at some distance from rafting streams and in the relatively hilly section of the unexplored interior.¹¹ The best stands are owned by private citizens; the poorer cuts belong to the Crown. The Government controls exploitation of its stands, but the better private areas are uncontrolled, and no doubt a great deal of over-cutting takes place on them. In 1943 the cut of mahogany was around 6,000,000 board feet.

Pine forests cover about one-third of the whole area of the country. An estimated 100,000,000 feet of local merchantable pine stands are available for cutting. Severe forest fires, however, have destroyed large areas of pine and have left useless and unproductive open savannas.

Rosewood is found in the southern swamp forest. A rather wide belt extends from the Sarstoon River, which forms the southern frontier of the Colony, in a northerly direction as far as Deep River. This beautiful and very durable wood is useful for cabinet work, furniture, inlaying, etc.

Spanish cedars grow mixed in with the mahogany trees, the best quality being found in the high-rainfall, calcareous areas of the south. The output is roughly about 10 percent of that of mahogany, or 600,000 board feet annually. It is used for cigar boxes, insect-proof cases, and wardrobes.

Sapodilla trees grow partly in the mahogany forests, in single mixture on poor land, and together with numerous other species of trees in the high rain forest. The chicle gathered from these trees is the second largest export of the Colony and is used chiefly in the making of chewing gum. During January-June 1944 domestic exports totaled 658,000 pounds, and for the corresponding

¹⁰ GIDDEN, CULVER E. MARKET FOR HOG LARD IN BRITISH HONDURAS. U. S. Cons. Rpt. No. 22, 3 pp., illus. Belize. Aug. 18, 1944.

¹¹ GIDDEN, CULVER E. FORESTRY IN BRITISH HONDURAS. U. S. Cons. Rpt. No. 38, 17 pp., illus. Belize. Nov. 8, 1944.

period of 1945 they amounted to 515,000. The reduction was partly attributed to an unusually long dry spell early in 1945.

The logwood is a small tree, native to British Honduras and other Central American countries. It yields a dye that is one of the few natural dye-stuffs which have maintained their position in competition with synthetic dyes. Mangrove forests cover a considerable area along the seashore, on river banks near the sea, and on islands. At present they are of little commercial importance. The cohune tree produces a nut from which oil may be extracted. About 11,000 short tons of these nuts are exported annually.

The Rubber Development Corporation has made efforts to obtain rubber from the trees in British Honduras but with little success.¹² The rubber is located over such widely scattered, inaccessible areas and in such small amounts that results are disappointing.

Government Policy

Probably the most outstanding phase of the Government's policy in relation to agriculture is its desire to ensure an adequate supply of locally produced foodstuff in order that the agricultural population may not only feed itself but raise a surplus to replace the present large imports of such foods as rice, beans, meat, milk, and vegetables. In addition, the Government desires the cultivation of such crops as cassava, citrus, coconuts, and bananas as cash crops for export and the introduction of an inspection system for these crops before export, especially for citrus fruit. Through a cooperative system and marketing schemes it hopes to secure improvement in the preparing and marketing of produce. It also desires the cooperation of the Department of Agriculture and of the Education and Medical Departments in establishing systems of vocational education and training, and, with the assistance of

the Agriculture and Forest Departments, it hopes to settle out-of-work families on the land.

In order further to promote this policy of agricultural development, the Department of Agriculture was started as a separate organization in 1936. Previously the Forest Department had been responsible for agriculture. A road program for the purpose of opening up the country to farming is being developed by the Department. Soil surveys were carried out in 1934 and in 1940.

The Department of Agriculture has experimental and demonstration stations at Stann Creek, Corozal, and Punta Gorda. They include farms for demonstrating mixed farming. Instead of allowing the land to go back to bush to regain its fertility, grasses are being planted on the fallow land. Later the grass is cut and fed to stabled cattle whose manure is in turn applied to the land. In other cases the fallow land is planted to pasture and grazed. Four land settlements have been established to foster permanent agriculture. The Department also carries out extension work among cultivators, operates plant-distribution services, supervises land settlements, and runs the rice mills and the grain-drying and storage plants at Punta Gorda and Belize.

The Government recently started a produce-purchasing program, by which it offered minimum prices to planters, and opened two buying depots to work in conjunction with the rice mills. The result has been to encourage greater and steadier production. The Government has occasionally made loans to a few planters, and it sometimes furnishes money to small cultivators under land-settlement plans. Early in 1943, \$141,225 from the Colonial Development and Welfare Fund was granted for the extension of food production.

Effects of the War

The economy of British Honduras was rather seriously affected by a wartime shortage of shipping space. The export of raw material, fruits, and nuts was made difficult. Importations of foodstuff, upon which the Colony is so dependent, were

¹² GIDDEN, CULVER E. ECONOMIC REVIEW OF BRITISH HONDURAS IN THE FIRST HALF OF 1943. U. S. Cons. Rpt. No. 17, 6 pp. Belize. Oct. 13, 1943.

materially reduced, and in some cases the resulting shortages became rather acute.

The policy of the Government had been to limit the importation of staple commodities and encourage the placing of orders in Great Britain, but with the war's approach the policy was reversed, and essential commodities were imported as often, in as large quantities as possible, and from whatever source available. This plan helped do away with some of the serious food shortages resulting from lack of shipping facilities and loss of previous sources of supply. Price ceilings were applied, which later had to be raised on staple foodstuffs because of difficulty in replacing stocks and the high freight rates.

Spanish Hops Self-Sufficiency Plan

by LUCILLE CORDER*

The hops monopoly, recently announced by Spain, though affecting a comparatively unimportant product, deserves attention as a rather novel method of attempting to curtail imports and promote self-sufficiency. The Government has employed various devices, such as Government loans and purchases, subsidies, seed distribution, and compulsory cultivation quotas, to stimulate the output of wheat, rice, potatoes, cotton, silk, lumber, and other products. In the case of hops, the official announcement stated that the Government would grant to those bidders assuming certain responsibilities for increasing production concessions not only as to the exclusive right to produce but also to distribute both domestic production and imports.

Under this program there is no direct economic participation by the Government or by any of the Spanish Syndicates, although the concessionaires, while participating as individuals, must be members of the Wine, Beer, and Alcoholic Beverages Syndicate. In addition to exclusive hops-marketing privileges, the concessions involve certain other special rights.

Fourteen Provinces in Northern Spain have been selected as the regions for growing hops and have been grouped into three administrative zones. For each zone, a schedule has been fixed by the Minister of Agriculture for gradually expanding hops production so as to reach national self-sufficiency by 1956. The total production goal for all three zones is 8.8 short tons in 1946, the first year of operation; 16.9 in 1947; and 29.2 tons in 1948.

*Office of Foreign Agricultural Relations.

Based on O'NEALL, CHARLES F. SPANISH PLANS FOR SELF-SUFFICIENCY IN HOPS PRODUCTION. U. S. Cons. Rpt. No. 365, 4 pp., illus. Madrid. Sept. 20, 1945.

The war has been in part responsible for greatly increased interest in agriculture. The fund granted in 1943 for the extension of food production and the general development of agriculture has been used for training farm demonstrators, setting up experimental stations, importing a few pedigreed cattle and hogs for breeding purposes, and long-range studying and planning.

The postwar period is, however, finding British Honduras with about the same problems as before the war; namely, the improvement of agriculture and the conservation of forests. Accompanying these major problems is the necessity for improved means of transportation and the reestablishing of the Colony's foreign trade.

Specific goals have not yet been set for the rest of the period, but the intention is to expand total production up to 330 short tons in 1956.

The concessionaires are given a 15-year contract, subject to earlier termination at the will of either party, that gives them exclusive rights in the distribution of the domestic production and of any supplementary hops imported, but they must supply the beer industry first. To facilitate the achievement of the production goals, they are given priority in the acquisition (including importation) of fertilizers and equipment needed under the program.

The concessionaires have to be financed by Spanish capital and shall not (except for a transitory period) be "limited" companies. All their employees must be of Spanish nationality. Their obligations include deposit of from 50,000 to 100,000 pesetas¹ according to the zone involved; payment of a minimum price to growers for their entire production (a higher price may be paid if needed to stimulate production); liability to fines for failing to meet the production schedule; provision, at their own expense, for the cuttings preparatory to the hops planting and for the equipment needed for harvesting, grading, and curing the hops; supplying financial and other necessary aid to the planters; and defraying the costs of the technical assistance that is to be provided by the Government.

¹ A Spanish peseta equals about 9 U. S. cents.

